Air Resources Board

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TECHNICAL BULLETIN 002-1 **API 400E OZONE ANALYZER**
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Issue

The Teledyne-Advanced Pollution Instruments (API) model 400E ozone analyzer (with internal zero span (IZS) option) status outputs as currently configured does not flag the data logger when the ozone analyzer is in the low span portion of its Autocal calibration sequence.

Symptom

When the 400 E w/IZS function is configured in the Autocal mode (Zero-Lo Span-High Span), the IZS calibration recorded by the Environmental Systems Corp. (ESC) 8800, 8816, or 8832 data loggers will not flag the low span portion of the IZS calibration program as calibration data.

Solution

Teledyne-API is aware of the problem and is currently working on a solution. In the interim, the ESC data logger can be used to control the 400E IZS Autocal calibration program via the 400E's Control In connector. To use the ESC 8800 data logger to control the 400E's IZS Autocal sequence, refer to the initialization for channel 1 (programming the 8800 data logger to initiate the IZS Autocal Sequence). Connect the 8800 to the 400E using the schematic (figure 1) or the schematic shown on the left hand side of page 28 in the 400E operators manual. Turn off any scheduled IZS functions (ACAL) in the 400E to avoid any scheduling conflicts or data confusion. For instructions for configuring ESC 8816's or 8832 data loggers contact the Operations Support Sections Instrument Lab.

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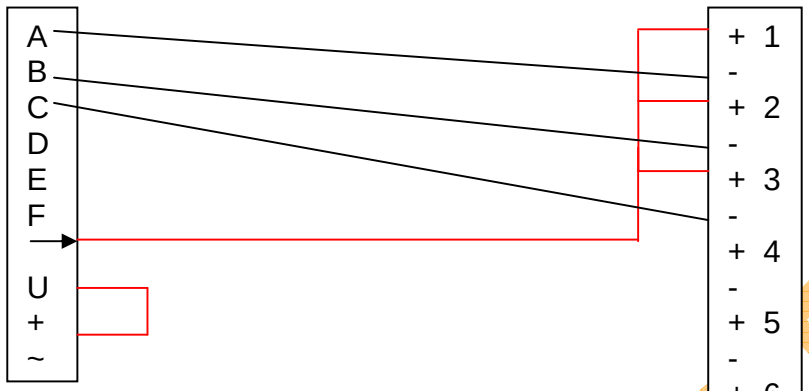
Programming the 8800 data logger to initiate the IZS Autocal Sequence

INIT 01
CHANNEL NAME: OZONE?
CHANNEL TYPE: 9?
STORE HOURLY AVERAGES: Y?
    HOURLY SIGMAS: N?
    HOURLY % VALID: N?
    HOURLY RANGE: N?
STORE AUX AVERAGES: N?
CHANNEL UNITS: PPB ?
VOLTS FULL SCALE: 1.000?
SLOPE: 500.0?
INTERCEPT: .0000?
DECIMAL POSITIONER: 1?
MAX READING: 525.0?
MIN READING: -25.00?
MAX RATE OF CHANGE: 500.0?
ALARM INTERVAL [N,M,A,H]: N?
BAD STATUS= XXXXXXXX XXXXXXXX ?
CALIBRATION TYPE: A?
WEEKLY ALT CAL: N?
AUTO-CAL START TIME: 04:00?
ZERO LINES: 01,00,00?
ZERO DURATION TIME: 20?
ZERO RESPONSE TIME: 05?
SPAN1 LINES: 02,00,00?
SPAN1 DURATION TIME: 20?
SPAN1 RESPONSE TIME: 05?
SPAN2 LINES: 03,00,00?
SPAN2 DURATION TIME: 20?
SPAN2 RESPONSE TIME: 05?
RECOVERY TIME: 05?
CAL SEQUENCE: Z12?
EXPECTED SPAN1, SPAN2: 90.00, 400.0?
10-STEP CALIBRATION: N?
ON-LINE: Y?

Connections between the API 400E and the ESC data logger (Figure 1)



API 400E Control In connector		ESC 8800 Digital Out connector
Pin A (zero)	connects to	#1 (-) on 8800
Pin B (low span)	connects to	#2 (-) on 8800
Pin C (high span)	connects to	#3 (-) on 8800
→ (digital ground)	connects to	#1,#2, and #3 (+) (jumper them together)

Jumper U and + together.